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A NEW GENUS AND SPECIES OF THE SOFT FLOWER BEETLES TRIBE APALOCHRINI (COLEOPTERA: MALACHIIDAE) FROM AFRICA

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Summary. A new genus and species, *Tibipectinus caeruleoviolaceus* **gen.** et **sp. n.**, is described in the tribe Apalochrini (Coleoptera: Malachiidae) from Tanzania, East Africa. In special male characters, the species of the new genus differ from *Hadrocnemus* Kraatz, 1895 by strongly dilated anterior tibiae, swollen and appendiculate intermediate tibiae, and emarginate femora in intermediate legs, and from *Hapalochrops* Bourgeois, 1908 in characters as follows: a first tarsomere of anterior legs simple, not flattened of widened, comb above second segment small, not enlarged and curved, an outer spur in anterior legs not curved, elongate and strong, antennae filiform and dilated distally. A new genus, *Tibipectinus* **gen. n.**, is described on the basis of characters mentioned above. Five species distributed in Africa, *T. appendicifer* (Pic, 1904), **comb. n.** (East Africa: Mozambique; Zanzibar; South Africa: Cape Province, KwaZulu-Natal), *T. fissipes* (Champion, 1920), **comb. n.** (Democratic Republic of Congo; Ethiopia; Kenya; Sudan; Uganda), *T. claripes* (Evers, 1990), **comb. n.** (Congo, Parc national de l'Upemba), *T. dilaticornis* (Champion, 1920), **comb. n.** (Nigeria, Onitsha), and *T. testaceicornis* (Pic, 1914), **comb. n.** (Congo, Nyangwe; Uganda), are provisionally transferred to a new genus

on the basis of external characters given in original description. External appearance, special characters and genitalia of male of the new species are illustrated, and a distribution map is provided.

Key words: Coleoptera, Malachiidae, Apalochrini, taxonomy, new genus, new species, new combination, Tanzania, Congo, Nigeria, Africa.

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Резюме. Описан новый вид и род жуков малашек трибы Apalochrini (Coleoptera: Malachiidae) – *Tibipectinus caeruleoviolaceus* **gen. et sp. n.** из Танзании в Западной Африке. Вид отличается по специфическим структурам самца: от рода *Hadrocnemus* Kraatz, 1895 расширенными передними голенями с закругленной гребневидной пластинкой сверху, вздутыми средними голенями, несущими узкий придаток у вершины снаружи и округло вырезанными по внутреннему краю средними бедрами, а от рода *Hapalochrops* Bourgeois, 1908 следующими признаками: первый членик передних лапок простой, не уплощен и не расширен, гребешок над вторым члеником маленький, не увеличенный и не расширенный, внешняя шпора передних ног не изогнута, длинная и прочная, усики нитевидные, чуть расширенные кверху. На основании этих признаков описан новый род – *Tibipectinus* **gen. n.**, в него включены, помимо нового, пять африканских видов: *T. appendicifer* (Pic, 1904), **comb. n.** (Восточная Африка: Мозамбик, Занзибар; Южная Африка: Капская провинция, провинция Квазулу-Наталь), *T. fissipes* (Champion, 1920), **comb. n.** (Демократическая республика Конго, Эфиопия, Кения, Судан, Уганда), *T. claripes* (Evers, 1990), **comb. n.** (Демократическая республика Конго), *T. dilaticornis* (Champion, 1920), **comb. n.** (Нигерия) and *T. testaceicornis* (Pic, 1914), **comb. n.** (Демократическая республика Конго; Уганда). Даны иллюстрации внешнего вида, специфических структур и гениталий самцов, а также карта распространения видов.

INTRODUCTION

The tribe Apalochrini presents a number of taxa in Oriental region and Africa is a territory of the most diverse special male characters of species belonging to *Apalochrus*-group, which basal antennomeres not enlarged or modified. Amongst them species with swollen and complicatedly hollowed or appendiculate intermediate tibiae in male are the most typical of African fauna of the soft winged flower beetles. Earlier, all Apalochrini species with the characters mentioned above, were attributed to the genus *Apalochrus* Erichson, 1840. Several species of Oriental genera were described and later synonymized under *Apalochrus* Er.

Many years later, in the generic review of the tribe worldwide, including Afrotropic taxa, Evers (1987) resurrected some of these genera and described new ones on the basis of special male characters, named “exitators”, were used for the generic

delimitation, as well as for the description of new species. As a result, species with enlarged and modified intermediate tibia in males were attributed to five genera, *Epitinus* Evers, 1987, *Pectinus* Evers, 1987, *Apalochrus* Erichson, 1840, *Dromanthomorphus* Pic, 1921, and *Hapalochrops* Bourgeois, 1908.

Later, *Epitinus* Evers, 1987 was synonymized as a junior synonym of *Mesopezus* Jacobson, 1911 (Tshernyshev, 2003), and *Pectinus* Evers, 1987 was synonymized under *Dromanthomorphus* Pic, 1921 (Tshernyshev, 2015). Mayor (2003) published important nomenclatural corrections for Dasytidae and Malachiidae and proposed the available name *Hadrocnemus* Kraatz, 1895 for Oriental species of *Apalochrus* Erichson, 1840. Thus, all species with typical intermediate tibiae in male mentioned above should be attribute to four genera, namely: *Dromanthomorphus* Pic, 1921, *Mesopezus* Jacobson, 1911, *Hapalochrops* Bourgeois, 1908, and *Hadrocnemus* Kraatz, 1895.

In fact, many species attributed to the former "*Apalochrus*" possess characters that differentiate them from any one of the genera mentioned above. One of the species was found in a series of Apalochrini from different regions of Africa that was purchased at the 1995 Prague Entomological Fair (Insektenbörse). Presence of tarsal comb in anterior legs of males did not allow attribution to the genus *Mesopezus* Jacobson, and absence of appendage in metathoracic mesepimera impeded placement in the genus *Dromanthomorphus* Pic. Species of the genus *Hapalochrops* Bourgeois, the largest Malachiidae representatives in Africa, reaching 8-9 mm length and possess swollen intermediate tibia, flabellate antennae and typically dilated anterior tibiae strongly modified and curved, with enlarged and flattened first tarsomere looks like a protruding distal lobe of tibia, and large velum-shape comb above 2nd tarsomere; all tibiae are simple, narrow, not emarginate. The species from the purchased series are half the length, with simple tarsal comb and first tarsomere, anterior and intermediate femora slightly swollen, and the latter are excavated on their inner side.

Type species of the genus *Hadrocnemus* Kraatz, *H. conradti* Kraatz, 1895 [a junior synonym of *H. malachioides* (Fairmaire, 1887)] is one of the most beautiful Malachiidae species of Africa according to Kraatz (1895: 60): " Die ansehnlichste bis jetzt bekannte Art, vom Ansehen einer schlanken *Malachius*-Art", differs in triple metallic colouration, green background iridescent distally to blue and glittering with gold laterally. Intermediate tibiae swollen and possess triangular appendage in external side; femora lacking emarginations, anterior tibiae slightly emarginate in distal half from beneath, not widened and lacking lamellate lobe. Unfortunately, still unknown remains construction of metathoracic mesepimera, nobody studied this structure when examining the species, the present author likewise has not yet studied this species. Nevertheless, it is obviously a different genus in comparison with a species discussed above and needs to be identified and taxonomically attributed.

Detail study of the male in the series of beetles from Africa purchased in Prague presented new characters allowing differentiation from the genera discussed above, namely: anterior tibiae dilated and provided with flattened lobe, not reaching distal

fourth, first tarsomere subquadrate, slightly enlarged, second tarsomere with a simple black comb above, antennae specific and slightly dilated on theit anterior margin, intermediate femora excavate in inner side, intermediate tibiae with a thin elongate appendage outwardly near the apex Aaedeagus wide, with a small and weakly ventrally curved lamella, with good visible strong black horn-like bristles from both sides of endophallus near the distal lobe of the aedeagus. These facts indicate this new species as a member of separate genus, which is described below as *Tibipectinus caeruleoviolaceus* Tshernyshev **sp. n.**

On the basis of characters mentioned above, five species from different regions of Africa are here provisionally transferred to the new genus, namely *T. appendicifer* (Pic, 1904), **comb. n.**, *T. fissipes* (Champion, 1920), **comb. n.**, *T. claripes* (Evers, 1990), **comb. n.**, *T. dilaticornis* (Champion, 1920), **comb. n.**, and *T. testaceicornis* (Pic, 1914), **comb. n.** New combinations are proposed based on typical characters taken from the original descriptions. Unfortunately, most of them are not sufficiently complete and many important structures, such as intermediate femora, are not discussed, and, probably, future placement of some species can be changed, for example, *T. dilaticornis* (Champion, 1920), and *T. testaceicornis* (Pic, 1914) demonstrating completely different shape of appendage in intermediate tibiae.

MATERIAL AND METHODS

The beetles were studied using an Amscope trinocular stereomicroscope (Ultimate Trinocular Zoom Microscope 6.7X-90X Model ZM-2TY) and digital photographs were taken using a Carl Zeiss Stemi 2000 trinocular microscope and the AxioVision programme. Male genitalia, embedded in DMHF (Dimethyl hydantoin formaldehyde), were mounted on a transparent card and pinned under the specimen. Specimens have been deposited at the author's collection, which is kept in the Institute of Animal Systematics and Ecology, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia (ISEA).

TAXONOMY

Family Malachiidae Fleming, 1821

Subfamily Malachiinae Fleming, 1821

Tribe Apalochrini Mulsant et Rey 1867

Genus *Tibipectinus* Tshernyshev, gen. n.

http://zoobank.org/NomenclaturalActs/59839a93-76af-445e-a635-1271467418d5

Type species: *Tibipectinus caeruleoviolaceus* Tshernyshev **sp. n.**, here designated.

DIAGNOSIS. Diagnosis is based on male characters only. Moderate sized (about 4.0–5.2 mm) soft-winged flower beetles with the body elongate, subparallel and expanded posteriorly. Upper side metallic blue-green, blue-violaceus or green-bronze

and underside black-brown, antennae, femora, tibiae and tarsi of anterior and intermediate legs, and bases of femora and tibiae in posterior legs yellow-brown, dark area varies between different species. Antennae filiform with anteriorly widened intermediate antennomeres, 3rd and 4th antennomeres elongate, triangular, 5th-10th antennomeres subquadrate, 4th antennomere 1.3 times as long as the 1st antennomere, antennae not long, extending beyond the middle of pronotum. Head small and flat, narrower than pronotum, eyes simple, not large, slightly protruding. Pronotum subquadrate, equilateral, with evenly rounded angles, slightly produced anteriorly and straight posteriorly and with distinct margination of sides; disc depressed at the base, with posterior margin elevated and swollen, surface almost completely lacking puncturation, strongly shining. Elytra subparallel, expanded just behind the base, densely and coarsely punctured, with protruding shoulders, apices evenly rounded, simple, suture distinctly marginate and slightly elevated, distinct from scutellum to apices of elytra. Anterior tarsi with small transverse comb above the 2nd segment, 1st segment subquadrate or trapezoid, enlarged, 2nd tarsomeres in anterior and intermediate legs half as long as those of posterior; anterior tibiae widened and excavate, possess curved lamellate widened lobe above, apical fourth depressed and elongate, with outer spur strong and straight; intermediate tibiae widened distally, stout, with thin strong elongate appendage in outer side distally, inner side of the tibiae complicatedly impressed, intermediate tarsi with elongate and enlarged, often strongly pubescent 1st tarsomere; femora in anterior and posterior legs slightly swollen, in posterior legs simple, thin, intermediate femora with round emargination in inner side.

Metathorax evenly swollen and weakly bituberculate, lacking appendage or tuft of hairs. Pygidium undivided, evenly rounded distally with straight apical margin; lateral lobes of the 8th ultimate abdominal ventrite bilaciniate, indistinctly adjoined, narrowed distally, with triangular emargination in middle; aedeagus almost completely straight and wide, with small and slightly curved ventrally lamella; two strong black horn-like bristles are visible in inner sack in distal half of the aedeagus. Tegumen narrow, wide, with short and very thin parameres.

Species of the genus is similar to representatives of *Hapalochrops* Bourgeois and differs in the smaller size (4–5 mm), anterior tibiae dilated and provided with flattened lobe, not reaching distal fourth, first tarsomere subquadrate, slightly enlarged, not flattened and widened, second tarsomere with a simple black comb above, not velum-shape, antennae not flabellate, slightly dilated upwards, intermediate femora excavate in inner side, not thin, weakly swollen, intermediate tibiae not extremely stout, moderately widened and with a thin elongate appendage outwardly near the apex, aedeagus not thin and elongate, but wide, with a small and weakly curved ventrally lamella and well visible strong black horn-like bristles from both sides of endophallus near the distal lobe of the aedeagus.

ETYMOLOGY**.** The name of the genus is a combination of two words: *Tibia* – referring to the legs, and *Pectinus* – is a name of the genus proposed by Evers to African species possessing a comb in anterior tarsi. The name of the genus is given to reflect specific male character of the new genus, pectinate dilated lobe on the anterior tibia.

SPECIES INCLUDED. Six species are distributed in East and South Africa: *T. appendicifer* (Pic, 1904), **comb. n.** (East Africa: Mozambique, Zanzibar; South Africa: Cape Province, KwaZulu-Natal); *T. fissipes* (Champion, 1920), **comb. n.** (Democratic Republic of Congo, Ethiopia, Kenya, Sudan, Uganda); *T. caeruleoviolaceus* Tshernyshev, **sp. n. (**Tanzania, Coast Region); *T. claripes* (Evers, 1990), **comb. n.** (Congo, Parc national de l'Upemba); *T. dilaticornis* (Champion, 1920), **comb. n.** (Nigeria, Onitsha); *T. testaceicornis* (Pic, 1914), **comb. n.** (Congo, Nyangwe; Uganda).

***Tibipectinus caeruleoviolaceus* Tshernyshev, sp. n.**

http://zoobank.org/NomenclaturalActs/990F1490-D7D6-4D79-BA2F-840FB178749C

Figs 1–13

TYPE MATERIAL. Holotype – male, **Tanzania East.:** Coast Region, Utete, Rufiji River, Kindwitwi Guest House, 8°00′S, 38°46′ E; 10–14.XII 1993, M. Snizek leg. (ISEA). Allotype – female, and paratypes (3 males and 2 females), idem.

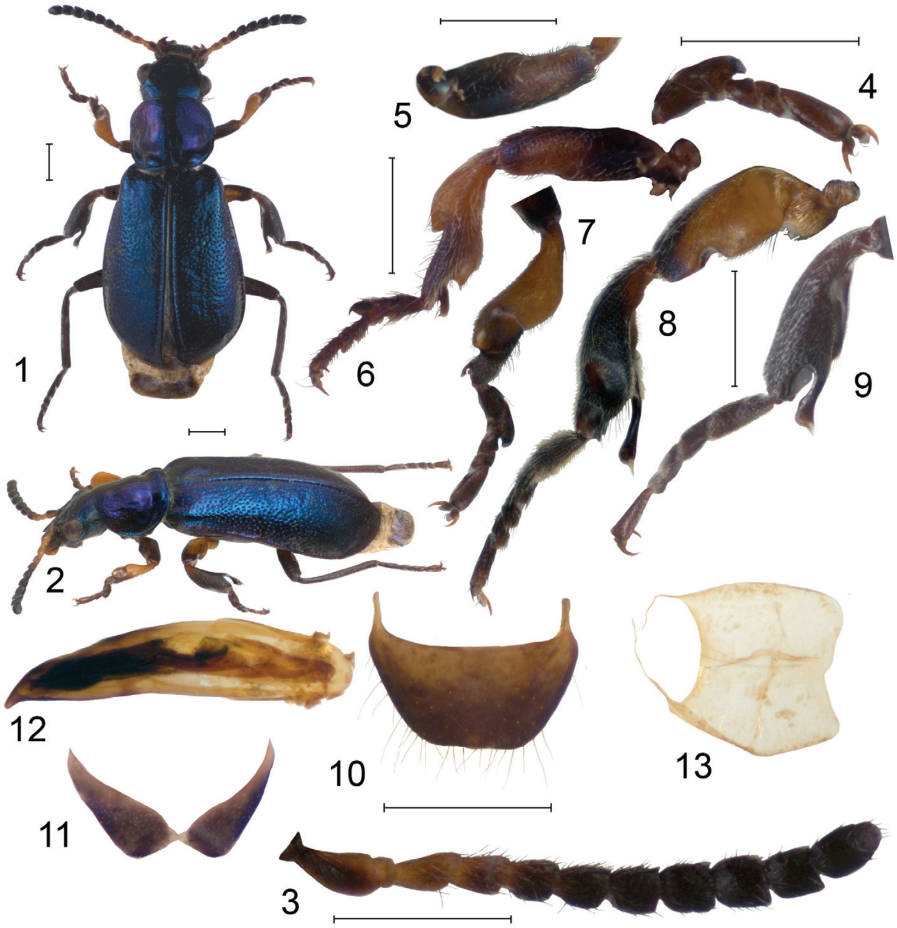
DESCRIPTION. Holotype, male (Figs 1, 2). Body elongate, subparallel, expanded posteriorly.

Apical part and underside of the 1st antennomere, the 2nd antennomere, the 3rd-4th antennomeres excepting dorsal surface and base of the 5th antennomeres, intermediate palpomeres, anterior tibia excepting outer sides of dilated lobes and bases of intermediate tibiae, outer half of anterior femora and intermediate femora excepting dark margination of distal side, median area of the abdomen yellow-brown other body parts black-brown; upper surface of head, pronotum and elytra with blue violaceous metallic lustre. Surface almost completely lacking pubescence, only present locally on head, sides of pronotum, on disc of scutellum and sides of elytra are visible semierect light short and fine hairs. Vesicles yellow-brown, and thoracic mesepimera black.

Head slightly narrower than pronotum, flat, not impressed; eyes slightly protruding, small, round, frons flat; genae short and straight; clypeus narrow, transverse, straight; labrum narrow, transverse; palpi simple with apical segment slightly flattened, rectagular; surface of head shining, almost completely lacking punctures except laterally behind eyes, sparsely covered with fine adpressed light pubescence and single long and strong black erect hair behind eyes.

Antennae filiform (Fig. 3), 1.6 mm long, reaching the base of pronotum (Fig. 1); 1st antennomere subconic, wide, 2nd small, round almost completely hidden by the 1st, 3rd and 4th antennomeres triangular, elongate, 4th antennomere slightly shorter than the 3rd, 3rd antennomere 0.7 times as long as the 1st, 5th-10th antennomeres subquadrate, each following is slightly wider than the preceding one, apical antennomere ovoid, as long as the 4th antennomere; surface evenly covered with short, dark erect pubescence.

Pronotum quadrate with evenly rounded angles, not narrowed apically, strongly impressed near base with posterior margin elevated and swollen (Fig. 1); slightly produced anteriorly and straight posteriorly; margination of sides distinct; surface almost completely lacking punctures, only with traces of puncturation, shining, with single light fine semierect hairs on sides behind eyes.



Figs 1–13. *Tibipectinus caeruleoviolaceus* Tshernyshev **sp. n.**, holotype, male. 1 – external appearance, dorsal view; 2 – external appearance, lateral view; 3 – left antenna; 4 – left anterior tarsus; 5 – femur of left anterior leg; 6 – left anterior leg, ventral view; 7 – left anterior leg, dorsal view; 8 – left intermediate leg, ventral view; 9 – femur and tarsus of left intermediate leg, dorsal view; 10 – pygidium; 11 – ultimate abdominal ventrite; 12 – aedeagus, dorsal view; 13 – tegmen. Scale bar 0.5 mm.

Scutellum rectangular, distinct and narrow, transverse, finely and densely punctured and possessing sparse fine light pubescence, margination of sides indistinct.

Elytra subparallel, widened posteriorly just behind the base, at base slightly wider than pronotum (Fig. 1); humeri distinct and protruding; apices evenly rounded, simple; disc distinctly marginate on external sides, suture wide, slightly elevated, distinct from scutellum to the elytral apices; surface shining, densely and punctured, with distinct microsculpture, sparsely covered with thin light semi-erect pubescence.

Hind wings normally developed.

Legs short and strong; posterior femora not reaching elytral apex; anterior tibiae widened and excavate, possess curved lamellate widened lobe above, apical fourth depressed and elongate, with outer spur strong and straight (Figs 6, 7); intermediate tibiae widened distally, stout, with thin strong elongate appendage in outer side distally, which is widened at apex and parallel to tibia (Fig. 9); inner side of the tibiae twice roundly impressed (Figs 8, 9); femora in anterior and posterior legs slightly swollen, anterior with depression in outer side covered with tuft of hairs and edged with row of short erect setae (Fig. 5), intermediate femora with semi-circular emargination on inner side (Fig. 8); posterior legs simple, thin, straight; all tarsi 5-segmented, slightly compressed, not long, anterior tarsi with small transverse comb above the 2nd segment, 1st segment subquadrate or trapezoid, enlarged, 2nd tarsomeres in anterior and intermediate legs twice as short as those of posterior; 1st and 2nd tarsomeres are equal in length and each twice as large as 3rd or 4th tarsomeres, claw-segment as long as 1st and 2nd tarsomeres together and half as wide in anterior and posterior legs, and of the same length as 1st tarsomere in intermediate legs; claws short, thin, narrow, with oval pellucid plate possessing small curved setae above; first tarsomere in intermediate legs enlarged, suboval, densely pubescent with goldish erect fine hairs.

Ventral body surface with smoothed sparse punctures, shining, sparsely covered with short, fine, adpressed goldish pubescence; metathorax swollen, slightly bituberculate because of longitudinal short stria in middle, lacking appendage of hair tuft. Pygidium undivided, evenly rounded and narrowed distally, with straight distal side (Fig. 10); lateral lobes of the 8th ultimate abdominal ventrite thin, indistinctly adjoined, narrowed distally, with triangular emargination in middle (Fig. 11); aedeagus almost completely straight, wide, with small, short and slightly down-curved lamella; two strong black horn-like intersecting bristles are visible in distal half of the aedeagus from both sides of inner sack (Fig. 12). Tegumen narrow, wide, with short and very thin parameres (Fig. 13).

Length 4.2 mm, width (at elytral base) 1.3 mm.

Female body somewhat longer and wider, antennae slender, 1st tarsomere as wide as the other tarsomeres, not enlarged, 2nd tarsomere lacking comb; all tibiae and femora simple, lacking excavations or appendages. Length 4.3 mm, width (at elytral base) 1.3 mm.

DISTRIBUTION. Known from type locality only, Tanzania: Coast Region.

ETYMOLOGY. The name of the new species is compiled from two Latin words reflecting specific combination in colouration, *caeruleus*- blue and *violaceus*- violet.

Key to the species of the genus *Tibipectinus* (males only)

1. Upperside black, pronotum with a weak metallic lustre . Legs yellow excepting brown external sides of posterior femora, antennae yellow with brown apical spots in 9th and 10th antennomeres; intermediate tibiae with protruding triangular edge above thin narrowed distally and bi-appendiculate appendage, which is longer than the distal side of the tibia in front ……..…. ***T. claripes*** (Evers, 1990)

– Upperside of head, pronotum and elytra blue or green with metallic lustre …..............…. 2

2. Upperside of head, pronotum and elytra with green, green-blue or green-bronze metallic lustre ………………………………............................…………………………. 3
– Upperside of head, pronotum and elytra with deep blue or blue-violaceous metallic lustre …………………......................……………………………………………. 5
3. Thin appendage in outer distal side of the intermediate segment perpendicular to tibia, distal side of tibia straight, not hollowed between appendage and inner lobe ......…… 4
– Thin appendage in outer distal side of the intermediate segment perpendicular to tibia, strongly curve inwardly at apex, distal side of tibia strongly hollowed between appendage and inner lobe; basal four antennomeres beneath or in part, anterior tibiae (except at the base and apex), the intermediate femora at the base yellow ….................……… ………………………….......................................……… ***T. fissipes*** (Champion, 1920)
4. 1st-5th antennomeres, palpi, intermediate femora yellow at the base beneath, remaining parts black-brown; antennae strongly dilated, anterior tibiae with wide dilated plate above …………..……… ***T. dilaticornis*** (Champion, 1920)
– 1st-6th antennomeres, palpi, all tibiae and femora in anterior and intermediate legs yellow, remaining parts black; antennae weakly dilated, anterior tibiae with narrow dilated plate …………………..……………. ***T. testaceicornis*** (Pic, 1914)
5. Antennae yellow, anterior tibiae yellow-brown, remaining parts of all legs black-brown; intermediate tibiae with thin dilated distally appendage, inner side of the tibia in front of the appendage not impressed …….. ***T. appendicifer*** (Pic, 1904)
– 1st-4th in part antennomeres and base of 5th antennomere yellow, remaining black; anterior tibiae and intermediate femora yellow excepting brown apical part, remaining parts of all legs black-brown; intermediate tibiae with thin dilated distally appendage, inner side of the tibia in front of the appendage strongly impressed …........………… ……………………..........................……… ***T. caeruleoviolaceus*** Tshernyshev, **sp. n.**

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